DOCUMENT RESUME

ED 108 386 EA 007 311

TITLE	Policies for Innovation and Research-and-Development in Education.
INSTITUTION	Organisation for Economic Cooperation and Development, Paris (France).
PUB DATE	Sep 74
NOTE	19p.; A statement of issues and conclusions by the OECD Education Committee
AVAILABLE FROM	OECD Publications Center, Suite 1207, 1750 Pennsylvania Avenue, N.W., Washington, D.C. 20006 (Free)
EDRS PRICE	MF-$0.76 HC-$1.58 PLUS POSTAGE
DESCRIPTORS	*Educational Change; Educational Environment; *Educational Innovation; Educational Research; Elementary Secondary Education; Higher Education; *Policy; *Policy Formation; *Social Factors

ABSTRACT

Policies for research and development and for innovation in education must be integrated within the broader societal context and their implementation must take into account the political and administrative structures of individual countries. Against this understanding, the discussion is presented in three stages: the creation of an environment within which the school can innovate, the need for a strategy for educational development, and the direct intervention of public authorities in the process of educational innovation. A final section makes the point that no coherent framework for the analysis of social change and, therefore, of educational innovation can exist without an underlying philosophy of the social processes involved. (Author/IRT)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED108386

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY.

SCOPE OF INTEREST NOTICE
The ERIC Facility has assigned this document for processing to: EA SP
In our judgement, this document is also of interest to the clearinghouses noted to the right. Indexing should reflect their special points of view.

POLICIES FOR INNOVATION AND RESEARCH-AND-DEVELOPMENT IN EDUCATION

EA 007 311

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT
PARIS-SEPTEMBRE 1971

The present report contains the views of the Education Committee of the OECD on the general concepts which could guide the formulation and development of coherent policies for Innovation, Research and Development in Education. The Committee has based its conclusions on the findings of its own detailed work in this area as well as that of the OECD Centre for Educational Research and Development (CERI). The Committee hopes that this report will provide useful guidance to those responsible for educational policy-making in the Member countries as well as stimulate wider thinking and discussion in this area.

The decision to derestrict the present document -originally circulated under reference ED(73)24, 1st Rev.- was taken by the OECD Council on July 18, 1974, on the recommendation of the Education Committee.

POLICIES FOR INNOVATION AND RESEARCH AND DEVELOPMENT IN EDUCATION

A Statement of Issues and Conclusions by the OECD Education Committee

INTRODUCTION

1. Educational change, pursued as an objective of policy, is a complex process generated by many sources among which the following are the most important: changing public attitudes and values; policy reforms, new knowledge and capacities of the educational professions; research and development; educational experimentation; diffusion of knowledge and techniques. It follows that not only policies for educational innovation and for research and development have to be viewed together but that both have to be related to the broader process of social change in which educational change is embedded. There is, of course, reciprocal influence between educational and other socio-economic factors and policies, and no single or simple model of the change process is likely to be operationally or theoretically valid.

2. This statement of the problem carries with it the implication that policies for R & D and innovation must be integrated within the broader societal context and that their implementation must take account of the political and administrative structures of individual countries. Thus, both the policies and the machinery for implementing them are bound to be pluralistic and idiosyncratic.

3. There is, however, the Committee believes, one possible common point of departure. Even in the most centralised systems, innovation only takes place when the functioning of the school, and especially the learning and experience of children or students, is affected. Thus, the best starting point for a general statement of policies is probably the educational institution itself, to which all public authorities are bound to supply services conducive to an environment within which the school can innovate. It follows that this statement applies to

all types and levels of educational institutions, including post-secondary education, even if for the sake of convenience the term "school" has been used throughout the text. The process of innovation does, of course, affect the various levels and types of education in different ways, according to the specific attributes of the institution concerned.

4. Secondly, even when direct intervention in the process of educational innovation is politically controversial, the public authorities cannot avoid orienting the process of change, except at the risk of foregoing their political responsibilities. They are bound to formulate an indicative strategy for the future development of the educational system. Such a strategy is the essential point of departure for policies towards research and development.

5. Finally, differences between countries are likely to be greatest in relation to direct intervention of the public authorities in the process of educational innovation. Even so, developments in this field are now very fast, and it is possible to determine some common problems and approaches.

6. Thus, the discussion in the following statement will proceed in three stages:

I. Creating an environment within which the school can innovate;

II. The need for a strategy for educational development;

III. Direct intervention by the public authorities in the process of educational innovation.

7. A final section makes the point that no coherent framework for the analysis of social change, and therefore of educational innovation, can exist without an underlying philosophy of the social processes involved.

I. CREATING AN ENVIRONMENT WITHIN WHICH THE SCHOOL CAN INNOVATE

8. Clearly the internal authority and organisational structures of the school affect the role it can play in innovation. The degree of autonomy of headmasters, the participation of teachers and students, and the influence of parents are all involved. How individual countries and communities deal with these matters is a matter of their own history and politics, but it is evident that Member countries need to come to grips with this problem if the school is to play its role in innovation.

9. It is unlikely that there would be agreement on the authority and organisational structures most conducive to innovation, but some common principles can be proposed.

10. First, there is a reasonable body of scientific evidence to suggest that a continuing process of "healthy" change is dependent on participation in one form or another. There is in consequence a need to define clearly the autonomy, as well as authority and responsibility, of the headmaster and of the teachers in the process of innovation, the mechanisms and extent of student participation, and the means of parent involvement and of the community at large.

11. Secondly, it is clear that participation can only be meaningful in the long run if pedagogical arrangements make it possible. In that sense, "democratic" schools with an "authoritarian" pedagogy could be a contradiction in terms. It can therefore be said that in a real sense independent learning, individualisation, group work and similar pedagogical trends represent a major potential contribution to the school as an active partner in the process of educational change. Such methods indeed try to extend participation to the individual child. By permitting a considerable variety in subject content, pace of learning, mode of expression and individual interaction, within a "workshop" rather than a "classroom" situation, these methods:

- allow a better match to individual differences;
- accommodate a more individual activity and initiative;
- lessen disciplinary confrontations (between teachers and adolescents no longer used to attending to their elders in silence);
- permit mixed-ability grouping (thereby reducing the alienating effect of streaming on less able children);
- accustom children to an independent approach which facilitates future, recurrent education.

These trends have specific and new implications for the involvement of the teachers in the organisation of the variety of learning resources available.

12. Thirdly, it is important that the degree within which the school can innovate should be explicitly defined in individual countries, and corresponding powers, means and supporting services explicitly provided. Both freedom and accountability are necessary for an effective innovation process. This implies specific measures in a number of well-defined areas, such as the following:

- the nature and degree of autonomy of the school;
- the reflection of this in the freedom to control or influence expenditures;
- examinations and the assessment of knowledge;
- the recruitment, training and retraining policies for teachers, especially as they sustain or undermine the innovative role of teachers;
- incentives for teachers, both financial and otherwise;
- inspection and advisory services;
- relationship to R & D centres, as a source of new information and professional support.
- information services.

13. Each of these areas has a specific and direct influence on the school and its ability to innovate. Public policies for each are therefore needed.

New Links between Schools and R & D

14. It is necessary to emphasize that relationships between schools and R & D activity and information will need to be considerably extended in an innovative context. The present pattern of isolated and often reluctant intervention between schools and R & D will need to be replaced by more coherent collaboration, based on clear grounds of school needs and mutual interests. Key elements towards such evolution would be a change in attitudes on the one hand of the school staff towards R & D, based on a better appreciation of its importance and methods and, on the other hand, of the professional researchers who at times show a lack of comprehensive understanding of school realities and day to day constraints.

Innovative roles for teachers

15. In the context of the pedagogical trends indicated above, policies to adapt the role of the teacher become of paramount importance. While maintaining his role of "mediator" between knowledge and the pupil, the teacher will also play a role as manager of the learning environment and the central organiser of supports for the learner. While much of his work will still be done in the classroom using improved technology, the teacher would have to be prepared to detect and mobilise the educative influences on children outside the school as well as to cooperate with other teachers, specialists and counsellors within it. The involvement of teachers in R & D constitutes an essential preparation for this changed role as well as a way of increasing the effectiveness of the R & D process itself.

16. The major effort for preparing teachers for this broader, more influential role must come from a change in the process of access and selection to the profession, together with a reformed initial education and an extension of in-service courses. Teacher education must ensure that teacher trainees are more effectively exposed to recent educational research. The greatest emphasis, however, would need to be for continuing education throughout the teaching career in which the teacher should play an active and equal part alongside academics, researchers and educational innovators. This change from a subordinate to a participatory role would help to raise the status of teaching, lessen the social distance between those involved in different sectors of education and commit the teacher as an active agent in the process of educational change.

The need for a local or regional educational service centre

17. Such new policies for teacher involvement in innovation will need to be related to how the institutions responsible for delivering the complementary services indicated above are effectively organised, bearing in mind that at the national level each is likely to be provided by specialised professional groups, and articulated via varying levels of central, regional and local responsibility.

18. There is no simple organisational model that can possibly reflect the complex relationships between these services, nor their relationship to the school. But there is a strong argument for a focal point, not too far from the school and its staff, for making these services available in a practical manner, since the school itself is unlikely to be a competent user of specialist services. This local or regional centre could be based on an R & D organisation, a training and information unit, a teacher training centre, an information and teaching materials centre or even on the local school administrative unit, or both, depending on the particular circumstances of the authority and educational structures in individual countries. The essential point is that the school cannot effectively use outside resources unless supported by some accessible group with information, advisory and other essential services.

19. Each country province or state should therefore identify in the context of its circumstances, the institution or institutions which could be developed to act as the link between specialist services and the school and be equipped to dispatch various professional support and information functions according to the needs of each individual school.

The organisation of specialised services to the school

20. If the case for a focal point at the local or regional level seems to be strong, it is equally clear that such centres could not operate effectively without the support and the inputs of specialised services of a functional character, in fields such as information on career and guidance, elaboration and/or adoption of new learning material and technologies, preparation of retraining programmes according to the various needs of the school staff, participation in a series of R & D activities, undertaking of evaluation of a given innovation etc. Depending on the administrative structure in the different O.E.C.D. countries, one begins to see the emergence of such organised services, either as part of existing institutions or autonomously, for providing information, advice, methods and materials, R & D, etc. Most countries are now specifically faced with the need to develop such services, and with the need to bring in support of schools in an effective manner.

II. THE NEED FOR A STRATEGY FOR EDUCATIONAL DEVELOPMENT

21. Such a complex array of services and institutional arrangements clearly requires some coherence of national or community purpose as well as responsiveness to the local needs of the schools. The major directions of educational change, as part of the general process of social change, must reflect to some extent the community's purposes as expressed through the political machinery. In other words, a "strategy for educational innovation" is nothing more or less than a policy for change in educational systems. In this sense, it seems clear that all countries need, subject to the peculiarities of their political systems, a strategy for future educational development. A country without such a strategy could not articulate such a complex set of services and institutions. Clearly, the political authorities in the educational field must be responsible for such a strategy, and insofar as R & D is needed as a consequence, must formulate needs for R & D.

22. A strategy would not take the same form in all countries, and would in general be indicative rather than prescriptive. Where the political authorities do not, on grounds of political principle, intervene in the content of education, it will be expressed in terms of inputs (e.g. allocation of resources, training requirements for teachers) and outputs (e.g. examination requirements) rather than in terms of the process and content of education (e.g. the United Kingdom). Where the curriculum is determined by official texts, qualitative reform will be an essential feature (e.g. France). In federal countries, it will tend to take the form of a series of strategic interventions(mainly of a financial nature)in the innovation process (e.g. the United States), supporting the state, provincial or local authorities in directions which reflect national policy consensus.

23. The central point is that, since education is now the biggest single organised activity in the advanced countries - and likely to grow bigger as adult education expands in the coming decade - a strategy for development related to new social objectives is indispensable.

24. It would be misleading, however, to look upon a strategy for educational development as a technical matter. Judgements about the future of education would necessarily be involved, and participation of the various interest groups therefore indispensable. The important question that arises is whether there exist in Member countries the mechanisms for involving the community, educational and otherwise, in a discussion about the future perspectives of the educational system. As in many social fields in which public activity responds to the daily needs and activities of individuals, new mechanisms complementary to parliamentary discussion are developing. National debates on the future of education, in which public opinion is given an opportunity to express itself via interest groups, on television, and through public opinion polls, are being used to establish a "feedback" between the educational clientele and policy decisions.

25. The essential point here is that social services for which "demand" cannot be adequately transmitted through the market mechanism need other mechanisms for expressing public demand, which is an essential "motor" of the innovation process.

Policies for research and development

26. A strategy for development would provide the essential basis for a policy for research and development - without it, it is difficult to see how research and development priorities could be defined. As a consequence, government departments with responsibilities for education (generally speaking but not exclusively Ministries of Education) have a clear responsibility for defining needs for research and development. In many cases, the initiating point will be the central policy/planning group, although the operating branches of educational administration clearly need to be brought into the definition of R & D priorities.

27. Insofar as development work is concerned, this role should be extended into the field of procurement,(1) as a means of generating a demand for new educational products and techniques. There is no reason why educational spending on buildings, equipment, teaching aids, texts and other learning materials could not be used as a stimulus to innovation. Taking the case of educational buildings alone, open and flexible use of space has become a sine qua non of the pedagogical innovations referred to in paragraph 11. The same obviously applies to texts and audiovisual aids, not to mention the educational sector as a major potential area of computer procurement. But the essential point is that educational administrations have not yet developed global and coherent policies (experimentation, production and control) which support the objectives of innovation, including continuing education of school staff in those fields.

28. Beyond procurement, there is a strong case for educational authorities at various governmental levels stimulating and perhaps undertaking major development projects. Various reasons argue in this direction, and principally the scale of financial and human resources involved in mounting development projects at a threshold level. The development of new educational technologies is a case in point: this case alone shows that the development of new teaching-learning systems involves cooperation between the private sector of industry, university-based R & D and public authorities. The organisation of these relationships depends on the resolution of complex and sensitive problems of public policy in relation to initiatives of private industry and freedom of choice by the local utilisers to avoid possible "cultural colonisation". The conditions of implementation of such comprehensive projects still need to be clarified on the basis of specific national experiences.

(1) Defined as the various actions of the educational authorities as buyers on the market of educational goods and services.

29. The situation is further complicated by the fact that development work in the educational field is becoming to some extent internationalised. A country may decide to adapt the results of development work undertaken in another country rather than initiate projects of its own in the same field. Already, a considerable international market in the exchange of development results is in existence, and in the long run this may pose a problem for national policies.

30. The conclusion is that, with the emergence of organised development work in education and international transfer of results between countries, there is a growing need for a co-ordinating body with the following functions: (1)

(a) the identification of needs and possibilities for developing new learning systems;

(b) the planning of resource allocation to contribute to development work;

(c) assistance in the organisation of trials, and in setting standards for quality control;

(d) cooperation with producers in disseminating the resulting materials and in creating an informed body of consumers;

(e) facilitation of transfer of development results from other countries.

31. However, it would be a mistake not to recognise that public responsibility for educational research extends beyond such mission-oriented R & D activities. Science policy has always recognised the distinction between the responsibility of governments for supporting mission-oriented research, and for supporting the general development of scientific knowledge. In education this means that both R & D directed to the solution of problems (identified in a development strategy), and R & D of which the motivation is dominantly scientific, should be supported. The latter is particularly important in education because the value judgements implicit in the choice of research projects argue for a diversified system of public support. Thus, in terms of government machinery, there can be an argument for a multiple system: on the one hand, mission-oriented support from educational authorities or other authorities with responsibilities for educational programmes; on the other hand, support from scientific agencies (national research councils, social science research bodies, etc.) with responsibilities for ensuring the development of scientific knowledge. Even if educational authorities continue to be responsible for both fields, it is particularly important to keep these two roles in mind in the field of education, because in many countries there

(1) As identified in the CERI report on Educational Technology, page 57.

is a confusion of motivations arising from the fact that both responsibilities are located in Ministries of Education.

32. The picture that emerges is thus a complex one. A simple solution, such as concentrating all responsibilities in a single national institution, would necessarily be simplistic. Indeed the political sensitivity of much educational research would argue for a spread of institutional responsibilities, with the public authorities stimulating and supporting research rather than undertaking it. On the other hand, there are some arguments for locating some scientific activities in any central group with responsibilities for supporting, stimulating and coordinating research. Foremost among them there is the need to maintain creativity and the professional respect of the scientific community. A purely administrative group would tend to lose its influence. Thus, while there is no case for concentrating research functions in a single national centre under public auspices, there is a case for an educational research agency to engage in research planning and research support, and some scientific functions of its own.(1).

33. Summing up, the above analysis leads to the following conclusions:

(i) the political authorities in the field of education should define a strategy for educational development for the 1970s, based on appropriate public consultations;

(ii) such a development strategy is the essential basis for defining R & D priorities, on which the public and the educational and scientific communities should also be consulted;

(iii) public support for educational R & D should be pluralistic, involving government educational agencies for mission-oriented research, scientific agencies with responsibilities for the general development of scientific knowledge, and the general support of the universities; if such an institutional framework is not possible, these two roles must be clearly delineated;

(iv) the performing system for educational R & D must be diversified and open, and there is no case for concentrating R & D performance in a single national institution;

---

(1) For a more detailed exposition of these issues see Kjell Eide, Educational Research Policy, CERI Technical Report.

(v) there is, however, in some countries a case for a central liaison or coordinating body for educational research as a focal point for establishing R & D priorities /(ii) above/ and for promoting coordination between the research-supporting agencies /(iii) above/

(vi) there is also a growing need for governments to promote major development projects in the field of education, and to use educational procurement as an instrument for supporting the process of innovation. In some countries the scale of development work has reached the point where specific bodies are needed to coordinate efforts, and to relate them to international exchange. Given the dependence of development work on political decisions, the weight of argument is in favour of locating such groups within or close to the central educational administrations.

III. DIRECT INTERVENTION BY THE PUBLIC AUTHORITIES IN THE PROCESS OF EDUCATIONAL INNOVATION

34. The main approach in this paper so far has been to argue (a) that the public authorities must develop policies which create an environment in which the school can innovate and (b) must in some sense orient the process of educational change by formulating a development strategy and, related but not wholly subordinate to it, a policy for research and development. The question which now needs to be taken up is whether more direct intervention to promote specific innovations is necessary and desirable considering, in particular, the social impact of educational development.

35. As the CERI report on Strategies for Innovation in Education shows, (1) this is quite clearly a political question. A decision to change a particular feature of the educational system involves value judgements which may or may not be shared by the various social groups involved. Thus, we cannot avoid relating the discussion to some understanding of how the political process works.

36. Nevertheless, it is equally clear that many decisions are predominantly educational in character, and it is clearly vital to insulate the school from politics by clarifying the extent to which the various categories of innovations do or do not call for intervention by political authorities. For this purpose, the categories defined in the "Strategies" report may be used. In this study, innovations were classified according to whether they were concerned with changes in (A) Objectives; (B) Structures; (C) Roles, and (D) Curriculum.

(1) OECD, 1973.

Innovations in objectives and structures

37. Even a cursory examination would suggest that whether or not the central government can or should initiate curriculum change or introduce innovatory roles into the system, it can hardly fail to be involved in changes of Type A. It is even more obvious that if the motivation is primarily social rather than educational, then the central government will necessarily be involved, though this involvement will in its turn be conditioned by the constitutional structures and conventions within a particular country.

38. A case in point is the introduction of a "comprehensive" system of secondary education, the case for which is based primarily on considerations of social justice rather than educational quality or efficiency. Whether or not to introduce such a system, is basically a political decision which can be taken only by the political authorities. The decision may be direct and positive as it was in Sweden, to introduce the 9-year comprehensive school; it could in that case be positive because in Sweden the power to make such a change rested indubitably and solely with the unitary central authority. For other countries, the decision-making is not so straightforward. In the United Kingdom the Labour Government, clearly committed to the comprehensive principle, was restrained by the traditional decentralisation of educational administration. It could have secured from the Parliament the necessary authority to compel each local education authority to introduce the comprehensive structural changes it desired, but it chose not to do so. In the German Federal Republic, the political aspect of basic decisions on educational structures is also quite obvious in the "comprehensive school" issue. The Federal Government - which, however, has no authority of decision in this field - and those six Laender with the same political grouping forming the Federal Government have pronounced themselves clearly in favour of going comprehensive; the five remaining Laender have decided to postpone a decision until the results of a jointly agreed upon experimental programme, under which all eleven Laender are running pilot schools, are available. In the meantime, of those six Laender in favour, two have established comprehensive schools as one of the regular types of secondary school (i.e. not just under special "experiment" provisions) alongside the traditional tri-partite system. The issue is quite clearly considered as one not only of pedagogy but also of social policy.

39. Much the same considerations enter into the objective of greater equality of opportunity in education. We have learned by experience, if we did not realise it originally, that this is not basically an educational question but a social one, whether it is disparity by socio-economic status or the problem of ethnic or religious minorities. The ramifications and

implications of any policy of innovation aimed at this opportunity objective are deep and wide ranging, covering the whole sweep of education from pre-primary to higher education and involving financial aid to parents and students, compensatory and remedial programmes, positive discrimination to offset handicaps. In such matters positive innovatory action must in all countries directly involve central initiatives.

40. It is suggested that with regard to any major innovation in Catogories A and B of the above typology - innovations which affect educational objectives, organisation and administrative patterns - the other ministries must also be involved. Few of the changes in these categories are purely educational with no involvement of outside societal factors and structures, and for that reason alone they can rarely be brought about by the educational system itself.

41. It does not follow, of course, that the initiative in each case must necessarily be taken by the central authority. The studies covered by the "Strategies" study show this with regard to Leicestershire in the United Kingdom and York County in Ontario. But even in decentralised systems, if an innovation is to make headway, positive action by the Ministry of Education or similar central authority is necessary; or the impact of the innovation will be small. In a more centralised system, such as in Sweden or France, this is still more obviously true.

Curriculum innovation

42. If, however, we turn to Category D - jumping C which is closely linked with B and of which examples are rare - we seem to enter a different world, where people and the substance of education are more important than the general structures and objectives; we have to deal here with what goes on in the school itself. Here we are concerned with the aims and content of the curriculum, with timetables, teaching methods and teaching materials, with assessment, evaluation and examining - precisely what most people seem to think of when innovation in education is mentioned. What is the function of the central government in this field?

43. The answer to this question varies very much according to the pattern of educational administration in the country. The British answer would be "nothing directly", though it would probably be safe to assume that the reply refers in fact to central government initiatives. It is of course particularly true that in this field of innovation the right idea and the initiative is likely to come from individuals; they will not emerge from the system and rarely from any philosophic doctrine or patterned process. The "Strategies" report has shown conclusively that the relatively simple model selected (i.e. research-development-innovation as a sequential process) has not worked in practice, even in the field of curriculum, in which in theory it might be expected to operate more easily.

In the 17 case studies it is established that the first stage of the process model - problem identification and definition - is rarely evident. Original innovation is rarely foreseen or intended; it tends to be accidental in the sense that a particular set of circumstances provide the opportunity.

44. This interpretation almost certainly does less than justice to, for instance, the National Board of Education in Sweden which has for many years had a much more systematic approach to innovation than most Ministries of Education, and it does not of course rule out the possibility that the accidental spark which sets off the innovation process may occur in the central administration itself. It could be argued indeed that this was the case in the United Kingdom in that the original initiative which led to the establishment of the Schools Council was taken provocatively by one or two officials in the Ministry; it certainly seems to have been the case in New Jersey, one of the 17 case studies.

45. Even, however, if it can be established that it is rare for the central authorities to take the initiative in curriculum, teaching methods and material innovation, it does not mean that their role is passive. It is in fact crucial, for it is most unlikely that the innovative process will make such headway without the active support of the state administrative machine and without some particular point of interest and responsibility for innovation within the Ministry of Education. The ability of the individual school to innovate or to respond to innovation depends partly upon the adequacy of its internal capacity and partly upon the nature of the environment in which it operates. The financial and human resources available to it, the quality of the leadership, the participation of teachers, students and parents and the day-to-day inter-reaction with the local community are all elements in the total opportunity and most of them are subject to, if not directly dependent on, action by the Ministry of Education or similar national authority. At this stage we can perhaps make the hypothesis that comprehensive projects of research-action and development activies of a certain order of magnitude and extent, play a bridging role "between the centre and the periphery". The amount of human and material ressources and the coordination needed tend to diminish the clear-cut roles in the various levels of innovation.

46. We are thus led to the conclusion that in most countries the public authorities intervene directly in innovations of Categories A and B and, even for curriculum innovation (D), are bound at least to take steps which create an environment propitious for changes by the schools themselves.

IV. GENERAL CONCLUSION

47. The above review has identified, under each of three major functions, a number of specific areas in which action by public authorities is necessary to promote educational innovation. Education, like a number of other rapidly growing services such as health and urban development, has now become so central to the pattern of life of modern, industrialised communities that new concepts and techniques of governmental action are needed. The central question is: how to strike the right balance in educational change between the rights of individuals and of local, religious, or ethnic groups, and those of the community at large; and how to relate all together in a democratic, creative process of social change?

48. Some overall philosophy is needed if the self-evident specific measures are to be coherently related. To spell out such a political philosophy and articulate its practical implications would be far too ambitious, but some guidelines may serve as a basis for further thinking in this matter.

49. Education performs essential cultural and social functions. For the purposes of the present analysis, the proposed starting point is that education should be viewed primarily in its social service function, responding to the needs of individuals, social groups and society at large as they perceive them, but within an organised framework which enables the individual to effectively pursue her or his personal development in society. From this standpoint, a possible framework for thinking of the innovation process in education is as follows.

50. Demand. Since education cannot be viewed - except marginally - as responding to market demand, public authorities must organise ways and means for demand to express itself. It is vital that new ways and means of exploring, formulating, and operationalising the social demand for educational services be explored. Without this, there will never be a socially effective process of innovation, and a clarification of the ways open to public authorities for articulating the demand for changes in educational services is needed.

51. Demand in its social context. As a social service, education is called upon to assist individuals in many different phases of their existence (childhood, education, work, career development, leisure, retirement). Moreover, at the national and community levels educational and other policies interact closely in providing conditions of life which respond to the new social objectives and aspirations which are subsumed under the concept of the "quality of life". The demand for educational change must therefore be formulated in a context broader than education; and the school itself must be related to (but not dominated by) the community around it.

52. Development. The educational service cannot respond to these changing demands without an organised process of development. Education is an organised system because the individual child needs a clear and interrelated pattern of institutions to foster the successive stages of her or his development. The process of development must therefore be in some sense organised, and this at least means that the public authorities must have a development strategy, and a related policy for research and development. Even if this is not the place to debate priority programmes in R & D, it is however necessary to emphasise that it will be difficult, if not impossible to develop and diffuse sound educational innovations, without focussing on how people learn and the factors associated with learning. This implies that the organisation of the process of educational innovation cannot be planned separately from the qualitative aspects of educational planning.

53. Participation. If education is to be seen as a service for the individual in society, demand and development must be related by a process of participation. Education cannot function as a service unless its clientele in some sense is involved in the process of decision. It is the essence of the problem of organising and managing social services that the relationships between the clientele, the supplying professions and the public authorities call for new mechanisms of participation and decision-making. This affects the organisational structure of the school, the pedagogical process itself, and the involvement of the community in local, regional and national decisions about education.

54. Information. In addition to being an instrument for development, R & D may be seen as a way of informing the public of new options in education and thereby enhancing the range and force of their participation. Information must also encompass current innovations and their results and school reforms in general as these occur in various places.

55. Evaluation. Since "consumer sovereignty" cannot express itself through the market, and in any case must be reconciled with the public welfare, it is an essential feature of social services that the public authorities foster the evaluation of educational experiments, and introduce evaluation results into the process of decision-making and participation. No single group should have a monopoly of evaluation procedures or results.

56. Diffusion and transfer. It is of the essence of social services, since they must be responsive to needs as different individuals and groups in society perceive them, that a diversified pattern of innovation will prevail. Moreover individual teachers, schools and communities will often innovate as part of educational movements beyond national boundaries. Public authorities therefore have a clear responsibility for assisting the diffusion and transfer of innovations nationally and, where appropriate, across countries.

57. Supporting services. The above main concepts of an innovation process in support of education as a social service, with the corresponding responsibilities of the public authorities, imply the provision of a definable range of supporting services to the school and different categories of school staff. The range of these is considerable and each implies clear policies and organisational arrangements for which only the public authorities can be responsible.

58. Resources. To bring about the kind of structure for innovation envisaged, an initial investment in human and material ressources is necessary. Without such an effort it seems difficult to expect any serious take off in this field. However, countries, according to their stage of development and resources available for education, would need to chart out carefully planned policies in the framework of their broader social priorities.